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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/532,001	08/10/2005	Seiji Tomita	28955.4024	3822
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EXAMINER				
WILSON, MICHAEL H				
ART UNIT		PAPER NUMBER		
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/532,001

Applicant(s)

TOMITA ET AL.

Examiner

MICHAEL H. WILSON

Art Unit

4145

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-14 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☒ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SF/86)
Paper No(s)/Mail Date 20050419; 20071204
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date ____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: ____

DETAILED ACTION

Oath/Declaration

1. The oath or declaration is defective. A new oath or declaration in compliance with 37 CFR 1.67(a) identifying this application by application number and filing date is required. See MPEP §§ 602.01 and 602.02.

The oath or declaration is defective because:

It does not state that the person making the oath or declaration acknowledges the duty to disclose to the Office all information known to the person to be material to patentability as defined in 37 CFR 1.56.

Applicant cited duty to disclose as 1.56(a) not 1.56. Appropriate correction is required.

Specification

2. The disclosure is objected to because of the following informalities:
The compounds on pages 14-25 are compounds of formulae 11-13, however none meet the limitations of X1-4 as defined on page 13, lines 3-4.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

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4. Claims 2-4 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claims 2 and 3, it is unclear whether the limitation "L is a group directly bonded to N" refers only to X5 or X1-5. For the purposes of this action the limitation on L is interpreted to refer only to X5.

Regarding claim 4, the recitation of L renders the claim indefinite. It is unclear how L can be directly bound to N when it is in the X1-4 positions, which bind to carbon atoms. For the purposes of this action X1-4 of formulae 11-13 are given the meaning of X1-4 in formula 9, consistent with the exemplary compounds in the specification, X1-4 may be hydrogen, L, L-Y, or Y-L-Y.

Appropriate correction is required.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 1-6 are rejected under 35 U.S.C. 102(b) as being anticipated by Taniguchi et al. (JP-2000219677-A).

Regarding claim 1, Taniguchi et al. disclose the material for organic electroluminescent devices comprising a compound represented by general formula 1 (abstract).

Regarding claims 2-4, Taniguchi et al. disclose all the claim limitations as set forth above. Additionally the reference discloses the material for organic electroluminescent devices wherein the compound is represented by

- formula 6 (abstract);
- one of formulae 8-10 ([0021]-[0029]; EA-05, EA-06, EA-09, EA-10, EA-15, EA-16, EA-19, EA-20, EB-05, EB-06, EB-09, EB-10, EB-15, EB-16, EB-19, and EB-20);
- formula 12 ([0021]-[0029]; EA-05, EA-06, EA-15, EA-16, EB-05, EB-06, EB-15, and EB-16).

Regarding claims 5 and 6, Taniguchi et al. disclose all the claim limitations as set forth above. Additionally, while the reference does not appear to disclose the specific triplet and singlet energies for the compounds, the compounds conform to general formula 1. As the instant specification teaches that compounds of general formula one meet the singlet and triplet energies required by the claims (instant spec. page 26, lines 1-6), the claim limitation is inherently met by the compounds of Taguchi et al.

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148

USPQ 459 (1966), that are applied for establishing a background for determining

obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

9. Claims 7-11, 13, and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Taguchi et al. (JP-2000219677-A) as applied to claim 1 above and in view of Hosokawa et al. (US 2002/0045061 A1).

Regarding claims 7 and 8, Taguchi et al. disclose all the claim limitations as set forth above. Additionally the reference discloses that the compound is suitable for use in an electroluminescent device [0002] and forms films [0003]. The reference does not explicitly disclose the structure of an electroluminescent device.

Hosokawa et al. teach an electroluminescent device with a cathode, an anode and one or more organic thin film layers having at least a light emitting layer which are sandwiched between the cathode and the anode [0021]-[0024].

It would be obvious to a person of ordinary skill in the art at the time of the invention to combine the device of Hosokawa et al. with the compound of Taguchi et al as Taguchi et al. disclose a compound for use in an electroluminescent device and Hosokawa et al. teach the structure of an electroluminescent device. One of ordinary skill in the art would recognize that the compounds of Taguchi would be suitable for use

in the light emission layer of Hosokawa et al. because Taguchi et al. teach it forms "excellent" films and is conductive. Such a substitution would amount to nothing more than use of a known compound for its intended purpose in a known environment to produce entirely expected results.

Regarding claims 9 and 10, Taguchi et al. disclose all the claim limitations as set forth above. Additionally the reference discloses that the compound is suitable for use in an electroluminescent device [0002] and forms films [0003]. The reference also discloses that the compounds of Taguchi et al. are capable of transporting holes and electrons [0009]. The reference does not explicitly disclose the structure of an electroluminescent device.

Hosokawa et al. teach an electroluminescent device with a cathode, an anode and one or more organic thin film layers having at least a light emitting layer which are sandwiched between the cathode and the anode [0021]-[0024]. In a single layer electroluminescent device, where there is one organic layer between the electrodes, the layer inherently becomes the electron transport, hole transport and light emitting layers taking on the functions of transporting both holes and electrons and recombining the holes and electrons in a recombination zone within the layer.

It would be obvious to a person of ordinary skill in the art at the time of the invention to combine the device of Hosokawa et al. with the compound of Taguchi et al. as Taguchi et al. disclose a compound for use in an electroluminescent device and Hosokawa et al. teach the structure of an electroluminescent device. One of ordinary skill in the art would recognize that the compounds of Taguchi would be suitable for use

in the hole and electron transporting layer of Hosokawa et al. because Taguchi et al. teach it forms "excellent" films and is conductive. Such a substitution would amount to nothing more than use of a known compound for its intended purpose in a known environment to produce entirely expected results.

Regarding claim 11, modified Taguchi et al. disclose all the claim limitations as set forth above. The reference also teaches compounds which form "excellent" films [0003]. The reference does not explicitly disclose the structure of an electroluminescent device.

It would be obvious to a person of ordinary skill in the art at the time of the invention to use the compounds of Taguchi et al. as a host material in the organic layer of an electroluminescent device. One of ordinary skill in the art would reasonably expect the compounds of Taguchi et al. to be suitable host compounds given the teaching that the compounds form films. It would amount to nothing more than use of a known compound for its intended purpose in a known environment to produce entirely expected results.

Regarding claims 13 and 14, modified Taguchi et al. disclose all the claim limitations as set forth above. The reference does not explicitly disclose the structure of an electroluminescent device.

Hosokawa et al. teach transition metal complexes [0042] in the light emitting layer to facilitate triplet emission [0020].

It would be obvious to a person of ordinary skill in the art at the time of the invention to combine the metal complex and use of triplet emission in the device of

Hosokawa et al. with the device of modified Taguchi et al. in order to increase the luminescent efficiency of the device. Such a combination would amount to nothing more than use of a known compound for its intended purpose in a known environment to produce entirely expected results.

10. Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Taguchi et al. (JP-2000219677-A) in view of Hosokawa et al. (US 2002/0045061 A1) as applied to claim 7 above and further in view of Kobayashi et al. (US 2002/0057052 A1).

Regarding claim 12, modified Taguchi et al. disclose all the claim limitations as set forth above. The reference does not explicitly disclose the structure of an electroluminescent device.

Kobayashi et al. teach placing an inorganic layer beside the cathode of an electroluminescent device as an electron injection or hole blocking layer [0036].

It would be obvious to a person of ordinary skill in the art at the time of the invention to add the electron injection or hole blocking layer of Kobayashi et al. to the device of modified Taguchi et al. One of ordinary skill would readily recognize that the electron injection and hole blocking layers of Kobayashi et al. would be useable in the device of modified Taguchi et al. as both modified Taguchi et al. and Kobayashi et al. teach electroluminescent devices. One of ordinary skill in the art would be motivated by the desire to increase electron injection efficiency and block hole from moving further than the emitting layer. Therefore such a combination would amount to nothing more

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than use of a known compound for its intended purpose in a known environment to produce entirely expected results.

Conclusion

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to MICHAEL H. WILSON whose telephone number is (571)270-3882. The examiner can normally be reached on Monday-Thursday, 7:30-5:00PM EST, alternate Friday off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Basia Ridley can be reached on (571) 272-1453. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

MHW

/Basia Ridley/
Supervisory Patent Examiner, Art Unit 4145